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# TOBACCO CUTWORMS

HOW TO CONTROL THEM



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# TOBACCO CUTWORMS

HOW TO CONTROL THEM



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Several species of cutworms seriously injure tobacco plants. In the spring, particularly, they feed in plant beds and on newly set tobacco, cutting off young plants near the ground and devouring leaves. Re-setting plants adds to the grower's expense and frequently is done too late to produce a satisfactory crop.

## Life History

Cutworms are the larvae, or young, of stout, dull-colored moths (millers) that fly at night. Each female moth lays from a few hundred to as many as 1,500 eggs. Eggs are laid on grass, weeds, or other vegetation.

The eggs are about half as broad as a pinhead. Moths of most species lay them in batches of several hundred, although many species place them singly or only a few together. The eggs hatch in 2 days to 2 weeks. The larvae eat greedily. After they mature, cutworms go into the soil where they hollow out small chambers, or cells, in which they change to pupae. The pupae, in turn, transform into moths, which emerge from the soil and lay eggs.

One to four generations are produced each year. Large cutworms of all the common species are found during April, May, and June. After about the middle of June, there is a lull in their destructive-

ness; vegetation becomes so abundant and various enemies become so active that cutworms seldom cause serious injury.

Most cutworms hide in the soil during the day and feed at night. On dark, cloudy days you may sometimes see them aboveground. Usually, however, if you are to see them in the daytime, you must search for them in the soil near the plants on which they feed at night. In the soil they are generally in a coiled position.

Cutworms are destructive only in the larval stage. The adults (moths) have mouth parts for sucking, not for chewing. They feed on nectar and do not injure plants.

## Kinds of Cutworms

Cutworm species can be divided into three groups according to the season in which they lay their eggs. Some cutworm moths lay their eggs in the spring and some in the fall; still others lay their eggs throughout most of the year. Most of them cut off newly set plants and feed on leaves that lie near the ground. However, certain species are climbers and eat foliage of high tobacco.

### *Those That Lay Eggs in the Spring*

Several cutworm species pass the winter as naked, brown pupae in the

soil, and the moths emerge in early spring. These moths will lay eggs in any vegetation growing at this time. In southernmost areas, moths may be present throughout the winter. This group includes some of the most destructive species.

The variegated cutworm<sup>1</sup> is one of the more injurious species. It occurs wherever tobacco is grown. It has 3 or 4 generations a year. The larvae vary considerably in color, but they may be distinguished by a row of yellow or orange dots down the middle line of the back.

The black or greasy cutworm<sup>2</sup> is light gray to nearly black. It is covered with small, shiny granules that, when examined with a magnifying glass, give the appearance of drops from a fine mist. It is in-

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<sup>1</sup> *Peridroma margaritosa*.

<sup>2</sup> *Agrotis ypsilon*.

jurious throughout the tobacco-growing regions, but is more abundant in the northern parts of its range. After cutting off a plant, this cutworm will often wander away to repeat the damage again and again.

The yellow-striped armyworm<sup>3</sup> is a climber and usually is more abundant in the dense foliage of maturing shade crops. The larvae are jet black to pale gray. They have triangular black markings along the back. Just below these, along each side, there sometimes is a bright yellow stripe.

#### **Those That Lay Eggs in the Fall**

Female cutworm moths in this group lay eggs chiefly in weedy or grassy fields in the late summer or fall. The larvae spend the winter partly grown. They feed

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<sup>3</sup> *Prodenia ornithogalli*.



Cutworm and the tobacco plant it fed on.

destructively on newly set plants in the spring.

The dingy cutworm<sup>4</sup> is grayish brown and has a broad, buff-gray stripe down the back. The stripe is outlined by a narrow, dark line on each side. This species is remarkably hardy and is not easily destroyed by plowing. It is one of the more common species in Tennessee, Virginia, and to the north.

The clay-backed cutworm<sup>5</sup> is found in the northern part of the United States. The larva is greenish to dark brown and has a broad, pale stripe down the back.

The dark-sided cutworm<sup>6</sup> has a prominent white stripe on the side, and has dark freckles on the head. This is a northern species that has done great damage to a variety of

crops. The moths lay their eggs only in cultivated fields.

The spotted cutworm<sup>7</sup> has a row of wedge-shaped black marks down each side of the back. It may have 2 or 3 generations a year. It is a very destructive northern species, but is scarce in the South.

#### **Those That Lay Eggs Throughout the Year**

In southern areas, certain cutworm moths continue to lay eggs throughout much of the year. In this group, the granulate cutworm<sup>8</sup> is dusty brown and has a rough, granulated skin. In northern Florida, about three-fourths of the cutworms that injure young tobacco are of this species. It is found throughout States on the Atlantic seaboard. In Florida, the moths

<sup>4</sup> *Feltia subgothica*.

<sup>5</sup> *Feltia gladiaria*.

<sup>6</sup> *Euxoa messoria*.

<sup>7</sup> *Amathes c-nigrum*.

<sup>8</sup> *Feltia subterranea*.



BN-3505

Cutworm damage to tobacco plants: A, Bud destroyed and plant cut off; B, leaf and plant cut off; C, stalk of plant severely chewed.

and larvae are active except in the coldest winter weather. This species can live on dry vegetation when no green food is available.

## Natural Control

Under normal conditions cutworms are controlled by a highly complex set of natural checks; only an occasional individual survives to injure crops. When this natural balance has been disturbed in some way, cutworm outbreaks occur.

### Weather Conditions

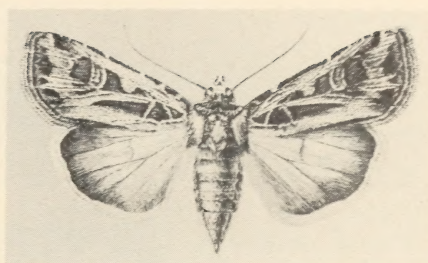
Weather conditions are especially effective in the control of those species that pass the winter as pupae; heavy autumn rains may cause an unusually high mortality in this group, so that these species may be scarce the following spring. Heavy rains also may kill large numbers of active cutworms by drowning or burying them. Some cutworm species are not able to withstand much cold, and are found only in southern States. Very cold weather and abrupt changes in temperature kill large numbers of all species of cutworms.

### Parasites and Diseases

Many insect parasites and a number of diseases attack cutworms. You may never see them at work, but without them cutworm outbreaks would occur more often.

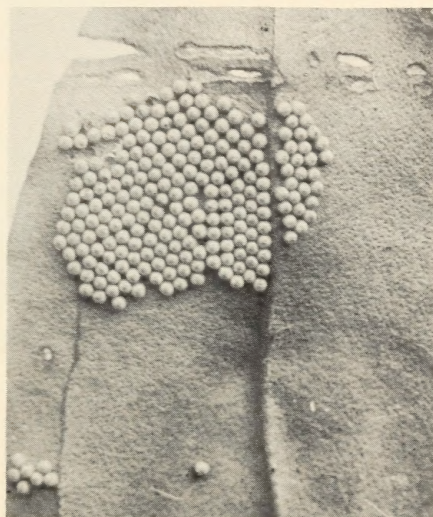
### Predatory Enemies

Predatory insects and spiders help reduce the numbers of cutworms. Birds also are effective in cutworm control. During May, cutworms and similar larvae make up more than 20 percent of the average diet of such common species as the chipping sparrow, cardinal, meadowlark, robin, redwing blackbird, bluebird, bobolink, Carolina



Adult of dingy cutworm.

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Eggs of the variegated cutworm moth.

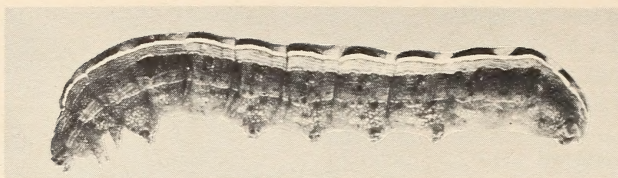
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wren, bobwhite, and crow. Toads also destroy cutworms.

## Control Measures

### Plowing the Soil

Plowing or cultivating land before using it as a tobacco plant bed or tobacco field may reduce the number of cutworms in the soil. The effects of this practice will vary with the locality, the species of cutworm present, and the time cultivation is carried out. Fall plowing breaks many of the cells in which some species pass the winter as pupae, and pupae in these broken cells die. In northern areas, late fall plowing is not effective against

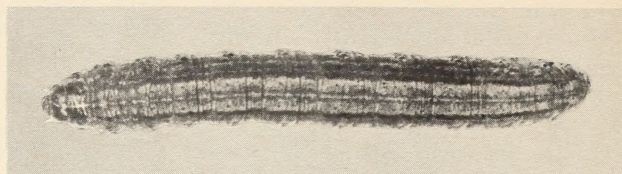


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**Climbing  
cutworm.**

**Claybacked  
cutworm.**

BN-3511



TC-3668

**Spotted  
Cutworm.**

those species that pass the winter in the larval stage. Some species can live a month without food and others thrive on dry vegetation.

In southernmost areas, the practice of keeping land free of green vegetation by cultivation for at least 60 days before setting tobacco plants has reduced cutworm damage. During this interval there is no vegetation to attract egg-laying moths; the cutworms already in the soil continue their development, and by the time tobacco is set out most of them have passed into the harmless pupal stage. Spring plowing or harrowing may reduce cutworm infestations on following crops by destroying larvae or pupae, reducing food supply, and eliminating green vegetation favorable to egg laying of most species.

#### **Control in Plant Beds**

Burning, steaming, or fumigating plant bed soil, for eliminating

weed seeds and disease organisms before sowing, kills cutworms near the surface. A well-constructed plant bed, having log or board side-wall barriers, helps prevent infestations during the growing period.

Even if you do these things, watch plant beds carefully for signs of cutworm injury. Apply insecticides at the first indications of damage to seedlings. Use baits, dusts, or sprays.

**BAITS.**—You can prepare a satisfactory bait for cutworms by thoroughly mixing the following ingredients:

Wheat bran	-----	50 pounds
Aldrin, 25% wettable powder	-----	4 ounces
Water	-----	to moisten

In place of aldrin, you may substitute 1 pound of 50-percent chlordane wettable powder, 4 ounces of 25-percent dieldrin wettable powder, or 8 ounces of 25-percent heptachlor wettable powder.



*Note.*—In preparing poisoned baits for cutworms, use wheat bran that is free of shorts, because shorts will cause lumps to form in the mixture when water is added, and make the bait difficult to apply properly.

Mix the bran and poison in a tub. A mechanical mixer may be used. Add the poison slowly while you stir. This is important. The purpose is to mix so thoroughly that each particle of bran in the finished bait will carry a little poison. Take care to avoid breathing the poisoned dust. If you mix the bait with your hands, wear gloves made of natural rubber.

Sprinkle—do not pour—water on the mixture of bran and poison, stirring slowly all the time. Stop when you have a crumbly mass. If you pour in large quantities of water at irregular intervals, poison will be washed from some of the bran, and you will get an uneven mixture. Set aside a little of the mixture of dry bran and poison so that, if you have used too much water, you can bring the mixture to the proper consistency.

Spread the bait in the late afternoon so that it will be fresh and attractive when the cutworms come out of the ground to feed. Apply the bait by hand at the rate of 4 pounds (dry weight) to each 100 square yards of infested area. Scatter it around the margins of the bed, in the walkways, and in any open spaces. Apply it only to the soil. Do not put bait on the plants, for it may burn the leaves.

DUSTS.—DDT or endrin dusts control cutworms satisfactorily when you use an efficient duster and obtain uniform coverage. Use DDT at a 10-percent strength; use endrin at 1- to 2-percent. Apply about 1 pound of the dust per 100

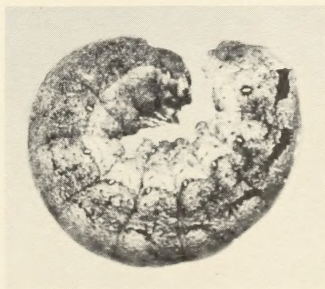
square yards of plant bed space. If you use tobacco dust as the diluent, it should be certified by the manufacturer as being sterilized and free from pathogenic organisms that might produce tobacco disease.

SPRAYS.—You can also apply DDT or endrin as a spray to control cutworms. Use 2 pounds of 50-percent DDT wettable powder or 1 quart of DDT or endrin emulsifiable concentrate to 100 gallons of water. Apply 3 to 5 gallons of spray per 100 square yards of plant bed surface, varying the quantity according to plant size.



Darksided cutworm.

BN-3509



Spotted cutworm.

TC-3668



Pupa of a cutworm.

BN-3506

## Control in the Fields

You can make a rough estimate of the abundance of cutworms in your fields by scattering compact bunches of vegetation over the land several days after plowing and examining the soil beneath them 2 or 3 days later. If you find cutworms, treat before the plants are set in the field. This is good insurance against cutworm injury to newly set plants.

**BAITS.**—You can reduce the number of cutworms in the soil by using poisoned bait. The formula for this is given on page 6. Use bait before or after transplanting. If used before, apply it after the land has been put in condition for setting the plants, but several days before the plants are set. Broadcast the bait over the field at the rate of about 20 pounds (dry weight) per acre. If the land is heavily infested, two applications of the bait, with a 2- or 3-day interval between the applications, may be necessary to produce effective control.

Where you use the bait after transplanting, 3 pounds (dry weight) per 1,000 plants applied near each plant are sufficient for moderate infestations. In heavier infestations, broadcast the bait at about 20 pounds (dry weight) per acre.

Apply bait late in the afternoon, preferably about sunset. If a heavy rain follows, the application will be ineffective and should be repeated.

**DUSTS.**—A 10-percent DDT or a

1- to 2-percent endrin dust applied at the rate of 10 to 15 pounds per acre to the plants and the adjacent soil surface provides satisfactory cutworm control on newly set plants and on the foliage of older plants.

In some areas, dusts containing chlordane are used for cutworm control. The dusts are broadcast on tobacco land several days before transplanting. They are effective if not disturbed by cultivation.

**SPRAYS.**—To apply DDT or endrin in a spray, use 1 to 1½ pounds of DDT per acre, or 0.2 pound of endrin per acre. An emulsifiable concentrate is preferable where a low-gallonage sprayer is used; however, either an emulsifiable concentrate or wettable powder may be used in high-gallonage sprayers.

## Precautions

Most insecticides are poisonous.

You can safely use those that are recommended in this bulletin if you carefully follow these precautions:

Handle insecticides with care. Follow all directions and heed all precautions on the labels.

Some insecticides can be absorbed through the skin. Therefore, after working with insecticides, wash all exposed surfaces of the body with soap and water and change clothing.

When you must handle treated tobacco within 5 days after application of endrin, do not let it touch your skin. Wear rubber gloves and tightly woven clothes.

This leaflet supersedes Farmer's Bulletin 1494, Tobacco Cutworms and Their Control.

Washington, D. C.

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